11 January 2000
NRL 5524

PURCHASE DESCRIPTION

GENERATOR, FUNCTION/ARBITRARY WAVEFORM

SCAT 4405

1.0 **GENERAL** This procurement requires a synthesized full-function generator with arbitrary waveform capability.

2.0 **CLASSIFICATION** The equipment shall meet the requirements of MIL-PRF-28800F, class 3 for Navy shipboard, submarine and shore applications.

3.0 **OPERATIONAL REQUIREMENTS** The equipment shall generate sine, square, triangular, ramp, noise, and arbitrary waveforms as defined and specified below.

3.1 Frequency Characteristics

3.1.1 Waveforms
3.1.1.1 Sine: At least 1 mHz to 15 MHz
3.1.1.1.1 Harmonics: < -30 dBc
3.1.1.1.2 Spurious: < -60 dBc {1 Hz to 1 MHz offset}
3.1.1.2 Square: At least 1 mHz to 15 MHz
3.1.1.2.1 Rise/Fall Time: < 20 ns
3.1.1.2.2 Overshoot: < 5 %
3.1.1.3 Triangle / Ramp: At least 1 mHz to 100 kHz
3.1.1.3.1 Linearity: 0.1 %.
3.1.1.4 Noise: 10 MHz bandwidth minimum
3.1.1.5 Arbitrary
3.1.1.5.1 Length: 16k points or more
3.1.1.5.2 Vertical resolution: 12 bits or more
3.1.1.5.3 Sample Rate: At least 40 Msa/s

3.1.2 Resolution: At least 1 mHz or 8 digits

3.1.3 Accuracy: < 10 ppm after warmup { T = 23°C ± 5°C}

3.1.3.1 Aging: < 1 ppm/mo

3.2 Output Characteristics

3.2.1 Amplitude: 50 mV p-p to 10 V p-p

3.2.1.1 Accuracy: ±2% of specified sinewave output at 1 KHz

3.2.2 Flatness: ±5% relative to a 1 kHz sinewave from 1 Hz to 15 MHz

3.2.3 Impedance: 50 _

3.2.4 DC offset: ±5V.

3.3 Sweep Characteristics

3.3.1 Type:Linear or logarithmic.

3.3.2 Start/Stop.10 mHz to 15 MHz for sine and square waveforms and 10 mHz to 100 kHz for triangle and ramp waveforms.

3.3.3 Speed.1 ms to 500s.

3.3.4 Trigger Source. Single, Internal, or External

3.4 Modulation Characteristics

3.4.1 Amplitude
3.4.1.1 Rate: At least 1 Hz to 10 kHz
3.4.1.2 Depth: 0 to 100%
3.4.1.3 Source: Internal (sine, square, triangle, ramp) or External

3.4.2 Frequency
3.4.2.1 Rate: At least 1 Hz to 10 kHz
3.4.2.2 Deviation: At least 10 Hz to 1 MHz
3.4.2.3 Source: Internal (sine, square, triangle, ramp)

4.0 GENERAL REQUIREMENTS

4.1 Power Source MIL-PRF-28800 nominal power source requirements are invoked. Maximum power consumption:50W.

4.2 Weight 5 kg (11 lb) maximum.

4.3 Accessories The function generator shall be supplied with all probes, pods, cables, adapters, and any other accessories necessary to attach to the system under test for full use of the analyzer.

4.4 Accessories stowage The function generator shall be supplied with a case that has provisions for the stowage of accessories.

4.5 Technical manual A technical manual shall be provided in both printed and electronic formats. The printed format shall be otherwise normally provided. The electronic format shall consist of the installation programs for the latest version of Adobe Acrobat for all computer platforms for which Acrobat is available and the technical manual in an electronic form that is readable through use of the Adobe Acrobat application.

4.6 Lithium Batteries Per MIL-PRF-28800F, lithium batteries are prohibited without prior authorization. A request for approval for the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.

4.7 Calibration Interval The calibration interval shall be 12 months minimum. The equipment shall be wfthin all accuracy requirements specified herein, wfth a 72% or greater confidence factor following a calibrabon interval of 12 months.

4.8 Year 2000 Compliance The manufacturer shall certify that the equipment is not susceptible to malfunction as a result of date/time functions associated with the calendar year 2000 or later.

4.9 Optional Transit Case The function generator shall be supplied with a hard transit case as a line item option. The hard transit case shall be complied with the specification in the standard MIL-PRF-28800F.